33646
S/051/62/012/001/015/020
E202/E492

24.6710 also 3617

AUTHORS: Grechikhin, L.I., Min'ko, L.Ya., Plyuta, V.Ye.

TITLE: Investigation of a plasma stream in an impulse discharge

PERIODICAL: Optika i spektroskopiya, v.12, no.1, 1962, 120-121

TEXT: The authors investigated a stream of plasma issuing from an opening in a flat copper electrode, produced by an impulse discharge between the latter electrode and a pointed iron rod electrode disposed along the axis of the opening. The diameter of the opening was 2 mm, the capacity of the condenser bank 60 μF and the power 2 kW. The discharge circuit contained a non-inductive resistance of 1.1×10^{-4} ohms, used for measuring the potential drop across its terminals. This P.D. was applied to the first pair of vertical plates of the C.R.T. The second pair was connected to the reference (sinusoidal) voltage of the audio-generator. The luminous part of the plasma was photographed by the high speed camera type СФР(SFR) mounted with its slit parallel to the axis of the stream, which made it possible to photograph the stream in all its stages of development, at right

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Investigation of a plasma stream ...

angle to its line of motion. The camera was synchronized with the initiation of the discharge and an additional arrangement for the synchronization of the oscilloscope was also included. The study of the luminosity of the plasma stream has shown that the strongest luminosity is present immediately behind the flat electrode; then it passes into a region of weak luminosity and is followed by a sharply defined region of strong luminosity which decays gradually. The comparison of the oscillograms and photograms shows that the high luminosity regions follow the current. The persistence of after-glow with the decaying discharge was observed to be fairly long, ca. 10^{-4} sec. The photograms show that the plasma stream consists of discrete "streamers" which are well defined in the positive and negative half cycles of the discharge. The shape of the streamers was found to be independent of the material of the electrodes. With the help of the streamers, the authors determined indirectly the velocity of the main plasma stream. A graph showing the average stream velocity in relation to the distance from the edge of the flat electrode shows that at a distance corresponding to the transition from low into high

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luminosity, there is also a sharp drop (from 3×10^3 to 2.1×10^3 m/sec) in the velocity of the plasma stream. The authors complete their work by giving a brief and qualitative explanation of the structure of the plasma stream. It is said that each of the individual streamers creates a compressive "jump", the distance of this jump from the flat electrode being proportional to the velocity of the issuing streamer. On the other hand, the velocity of the main stream changes during each half cycle, following the change in the discharge current. The absolute value of the stream velocity depends on the nature of the metal. It was found to be higher in the case of light metals.

Acknowledgments are expressed to M.A.Yel'yashevich for discussion.

There are 2 figures and 9 references: 7 Soviet-bloc and 2 Russian translations from non-Soviet publications.

SUBMITTED: June 12, 1961

Card 3/3

ACC NR: AP7000311 SOURCE CODE: UR/0413/66/000/022/0025/0025

INVENTOR: Levin, B. G.; Yermin, N. I.; Plyuta, V. Ye.; Shestakov, M. I.; Vasil'yev, K. V.

ORG: none

TITLE: Method for manufacturing articles with variable cross section. Class 7, No. 188454

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 22, 1966, 25

TOPIC TAGS: cold rolling, variable cross section article, ~~article cold rolling~~ fabricated structural metal

ABSTRACT: This Author Certificate introduces a method for manufacturing articles with variable cross section by cold rolling of a stationary blank with two undriven rolls. To improve the dimensional accuracy and the surface quality of the article the blank is rotated after each working cycle around the longitudinal axis for a programmed angle and the amount of feed is automatically changed.

SUB CODE: 13/ SUBM DATE: 05Aug61/

Card 1/1 UDC: 621.771.65.04

PLYUTA, Viktor Yefimovich; STEPANOV, V.G., red.

[Introducing cold roll forming of machine parts] Opyt vnedreniia kholodnogo profilirovaniia davleniem detalei mashin. Leningrad, 1964. 21 p. (MIRA 18:1)

PLYUTACH, M. N.

PLYUTACH, M. N.--"7 Hydroxycholesterol of the Blood of Animals." Min Public Health RSFSR, Leningrad Sanitary Hygienic Med Inst, Leningrad, 1955 (Dissertation for the Degree of Candidate in Medical Sciences)

SO: Knizhnaya letopis', No. 37, 3 September 1955

PLYUTACH, M. N.

PLYUTACH, M. N.--"7-Hydroxycholesterol of the Blood of Animals." * (Dissertation for Degree in Science and Engineering Defended by USSR Educational Institutions) Min Public Health RSFSR, Leningrad Sanitary-Hygienic Med Inst, Leningrad, 1955. *Medical Sciences

SO: Knizhnaya Letopis' No. 37, 10 September 1955.

PLYUTIKOVA, P.

PANKOVA, F.; PLYUTIKOVA, P.; PROKOF'YEVA, T.

Improving the straining and mixing of eggs. Mias. ind. SSSR 25 no.5: 28 '54. (MLRA 7:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut ptitsepererabatyvayushchey promyshlennosti.
(Eggs)

L 07263-67 EWT(d)/EWT(m)/EWP(v)/EWP(k)/EWP(h)/EWP(l) JR/GD

ACC NR: AT6025304 SOURCE CODE: UR/0000/66/000/001/0036/0048

AUTHOR: Plyutinskiy, V. I.; Kazachkov, V. I.; Vishnyakov, V. I.

ORG: none

30

B+1

TITLE: Certain problems of optimal control of nuclear reactors

SOURCE: Moscow. Inzhenerno-fizicheskiy institut. Upravleniye yadernymi energeticheskimi ustanovkami (Control of nuclear power plants), no. 1. Moscow, Atomizdat, 1966, 36-48

TOPIC TAGS: nuclear reactor control, optimal control, reliability, reactor neutron flux

ABSTRACT: The authors describe a control system which makes use of two means of increasing control-system reliability, namely increase of the reliability of the elements themselves and the design of reliable systems made up of unreliable elements. This is done by using a relay-input regulator whose output signal guarantees sufficient speed of the control process in the absence of self oscillations. Such a system is based on a six-group solution of the reactor neutron kinetics. Block diagrams of regulators for the neutron flux, for the coolant temperature, are presented in the single-channel and in the three-channel ("two out of three") operating versions. It is claimed that a tentative reliability of approximately 0.93 can be attained for the

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L 07263-67
ACC NR: AT6025304

three-channel regulator. Another advantage of the three-channel regulator is that faulty operation of individual channels can be readily detected. Orig. art. has: 8 figures and 18 formulas

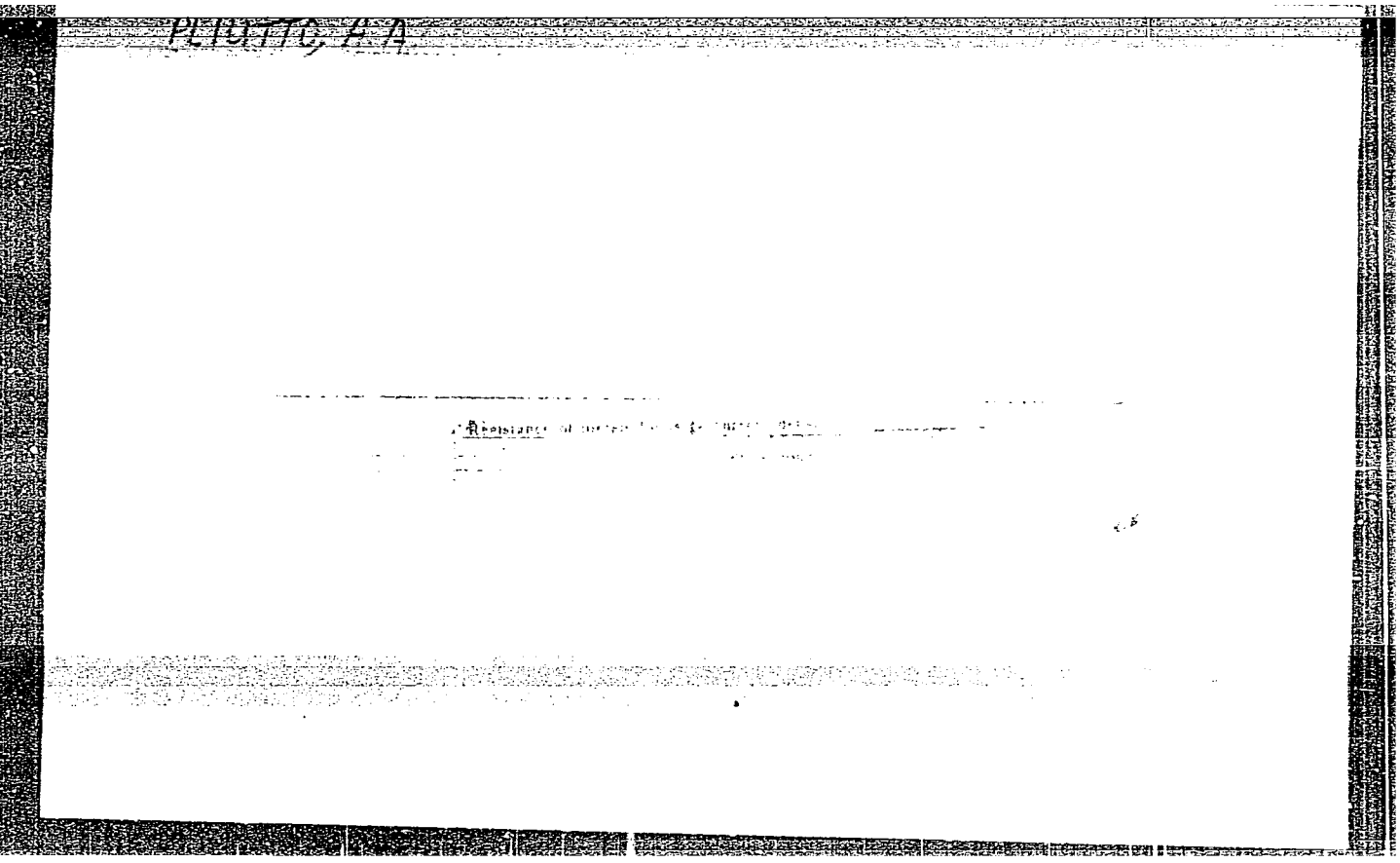
SUB CODE: 18/ SUBM DATE: 27Dec65/ ORIG REF: 002/ OTH REF: 001

Card 2/2

PLYUTOVICH, V.N.

OBOLONNYY, V.K.; PLYUTOVICH, V.N.; STEPANOV, Yu.A.

Neutralizing the destructive action of chromium in wrought iron by using ferrotitanium and aluminum as modifying agents. Trudy SNTO MVTU no.3:67-75 '57. (MLRA 10:9)
(Iron-chromium-forrotitanium-aluminum alloys)
(Iron alloys--Metallurgy)



PLYUTTO, A.A.

USSR/Physics - Resistance

FD-1822

Card 1/1 Pub 146-7/25

Author : Bondarenko, V. V.; Kvartskhava, I. F.; Plyutto, A. A.; Chernov, A. A.

Title : Resistance of metals in the case of large current densities

Periodical : Zhur. eksp. i teor. fiz. 28, 191-198, February 1955

Abstract : The authors present the results of an investigation into the dependence of the resistance of certain metals upon current density. The compare the experimental curves representing the dependence of the resistance of copper, silver, platinum, etc. upon the magnitude of the energy introduced with the curves computed from tabular data. They establish that for these metals Ohm's law holds up to current densities of about 10^7 amperes per square centimeter. Seven references; e.g. Ye. S. Borovik, DAN SSSR, 91, 771, 1953.

Institution: --

Submitted : February 16, 1954

Electric explosion of metallic wires [illegible] *Zhur. Eksptl. i Teoret. Fiz.* 30, 42-53 (1956). Quant. [illegible] of energy in [illegible] explosions of wires [illegible] 15 cm. long in air, vacuum, water, and solid [illegible] were investigated by current and voltage oscillographs and by simultaneous [illegible] [illegible] is reached [illegible] in K [illegible] in glass capillary [illegible] within several microsec. during the process of explosion, the wire receives the initial impulse of the discharge, and the current begins to decrease $dI/dt < 0$, this causes an over voltage in the wire. At the end of the first impulse the current and dI/dt approach zero [illegible] pause," lasting up to several hundred microsec. [illegible]

impulse is characterized by much greater current and [illegible] voltage than those of the first impulse; this indicates an arc discharge. The oscillograms of Al, Ag, and Au wires are similar to that of Cu wire; those of W, Mo, Fe, Ni, and Ni-Cr are similar to that of Pt wire, characterized by the region of the first impulse. Expts. with wires embedded in poly(methyl methacrylate) and submerged in water showed that shape and magnitude of the first impulse are independent of the surrounding medium. A. P. Kotlob[illegible]

~~PLYUTTO, A.A.~~ PLYUTTO, A.A.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1871
AUTHOR KVARCCHAVA.I.F., BONDARENKO,V.V., PLJUTTO,A.A., ČERNOV,A.A.
TITLE The Oscillographic Determination of the Energy of the Electric Explosion of Wires.
PERIODICAL Žurn.eksp.i teor.fis,31,fasc.5, 745-751 (1956)
Issued: 1 / 1957

These oscillographic investigations took place within a relatively wide range of voltages on the condenser of the explosion circuit. By means of a "current resistance" (V.V.BONDARENKO et al., Zurn.eksp.i teor.fis,28, 191 (1955)) amperage oscillograms were obtained which are free from all inductive distortions. The energy introduced into the wire was computed solely on the basis of the amperage oscillogram, the known initial voltage on the condenser, the capacity of the condenser, and the inductivity of the induction circle.
The electric explosion was caused by means of a discharge by the wire passing through a high tension condenser. The wiring diagram and the method of the experiment is described by the above cited work. Above all, copper wires were investigated because here the basic features of the electric explosion were the most distinct. These wires were 60 mm long and had diameters of 0,05; 0,1 and 0,15 mm. The capacity of the condenser battery amounted to 2,5 μ F, the initial voltage was from 5 to 40 kV, and inductivity 0,4 and 4,2 microhenry.
If the initial voltage U_0 is increased or if L is diminished, the first current pulse which causes the electric explosion of the wire, becomes shorter

PLYUTTO, A.A.

AUTHOR PLYUTTO A.A., KERVALIDZE D.N., KVARTSKHAVA I.F., 89-8-12/26

TITLE A Spark Source of Multiple-Charged Ions.
(Iskrovoy istochnik mnogozaryadnykh ionov- Russian).

PERIODICAL Atomnaya Energiya, 1957, Vol 8, Nr 3, pp 153-156 (U.S.S.R.)

ABSTRACT By means of a spark source, which is described in detail, it is possible to obtain multiply charged ion fluxed of high intensity. As acurrent source for the formation of the spark a condenser with 10^3 to 10^5 nF, 10-70 kV, average spark current 10^2-10^4 A was used. For sucking off the ions condensers with 10^4-10^6 nF and 15-70 kV were used. The ions were analyzed by means of a Thompson parabola - mass spectrograph.
The following ion currents (not focussed) were obtained:

$C^{+3}, C^{+4}, N^{+3}, N^{+4}, O^{+3}, O^{+}$	~ 10 to several 100 m A
N^{+5}, O^{+5}	~ 100 μA to several m A
O^{+6}	~100 μA.
$Cu^{+6}, Cu^{+7}, Ni^{+6}, Ni^{+7}$	≈100 μA.

By fitting a magnetic focussing device focussed ion currents (30 kV suction voltage) were obtained:

H^{+1}	10 m A
H_2^{+1}	1 m A
C^{+4}	6 m A
C^{+3}	15 m A.

Card 1/2 (3 illustrations and 3 Slavic references).

88431

S/056/60/039/006/019/063
B006/B056

26.2332

AUTHOR: Plyutto, A. A.

TITLE: Acceleration of Positive Ions in an Expanding Vacuum Spark Plasma

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1589 - 1592

TEXT: From tests described in Ref.1, a number of ion spectra of vacuum "hot" sparks were available, which had been produced by a Thomson mass spectroscope. An analysis of these spectra led to the discovery of very fast positive ions ($\sim 10^3$ - 10^4 ev). Further investigations showed that the acceleration of these ions does not take place in the spark but in the course of the plasma expansion into the vacuum. Such an ion spectrum with a distinctly visible fast component is shown in the figure. It was obtained under the following conditions: Acceleration voltage V_o = 9 kv, spark voltage 7 kv, inductivity of the spark circuit L = 6μH, spark capacity 0.005μF. For H^+ and D^+ the maximum ion energy attains 18 kv, for

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Acceleration of Positive Ions in an Expanding Vacuum Spark Plasma

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Li^+ - 24, and for C^+ - 35 kv, whereas an estimation of the mean energy gives 2.5 kv. In most cases, the fast component is only weakly marked and in some cases it is not noticeable at all. From the facts determined experimentally, as e.g. the V_o - dependence of maximum and medium energy, conclusions can be drawn as to the mechanism for the acceleration of ions by electrons in an expanding highly ionized plasma. The acceleration mechanism is illustrated by the example of a spherical droplet: The light and fast electron component tends to leave the drop, but is held back by the Coulomb forces appearing with charge scattering. The drop is expanded from inside by the electron gas, and the ions are radially accelerated. This collective energy transfer from electrons to ions may be compared with the acceleration of a heavy piston (ions) by the vapor (electrons). In thermodynamical calculation and on the assumption of isothermal expansion, one obtains for the mean ion energy $\bar{W}_i = 4.6\bar{Z}\bar{W}_e \cdot \log(r/r_o)$, where $\bar{W}_e$ is the mean electron energy (25 ev), $\bar{Z}$ - the mean multiplicity of the ion charge (1 - 2), r_o and r the initial and the final drop radius. More detailed investigations give $\bar{W}_i = 3.8 \cdot 10^{-3} \bar{W}_e^{1/2} \bar{Z} n_{oe}^{1/2} r_o^{3/2} (r_o^{-1/2} - r^{-1/2})$, where n_{oe}

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B006/B056

denotes the initial electron concentration in the plasma ($10^{14}cm^{-3}$); with r_o = 0.1 - 1 cm and $r \gg r_o$ one thus obtains $\overline{W}_i/\bar{Z} = 2 \cdot 10^3 - 2 \cdot 10^4$ ev. This acceleration mechanism may be used to observing physical processes in inhomogeneous plasmas, e.g., for explaining anomalously low electrical conductivity in inhomogeneous plasmas. The author thanks I. F. Kvartskhava and K. N. Kervalidze for their assistance, and Academician K. D. Sinel'nikov, Professor Ye. S. Borovik, and B. S. Akshanov for discussions. There are 1 figure and 2 references: 1 Soviet and 1 US.

SUBMITTED: July 14, 1960

Card 3/4

MURGULIYA, G.Ye.; PLYUTTO, A.A.

Neutron generator with a spark ion source. Prib.i tekh.eksp. 6 no.5:28-30 S-O '61. (MIRA 14:10)
(Neutrons) (Ion sources)

24,2120 (1049,1482,1502,1532)
26.2321

S/057/61/031/004/003/018
B125/B205

AUTHORS: Plyutto, A. A. and Kervalidze, K. N.

TITLE: Calculation of the radial motion of plasma in the case of an induction pinch

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 4, 1961, 400-406

TEXT: The present paper deals with the calculation of the motion of plasma on the assumption that the current-carrying layer has an infinite conductivity and the plasma is completely raked. Particular attention has been paid to the physical aspects of the problem. The equation of motion is considered on the following simplifying assumptions: The breakdown through the gas occurs instantaneously. The magnetic field between plasma envelope and solenoid is given by $B_c = 4\pi i/c = B$. The plasma motion is schematically shown in Fig. 1. The equation of motion for the plasma front reads:

$\frac{d}{dt}\left(M\frac{dr}{dt}\right) = -\left(\frac{B^2}{8\pi} - P\right)2\pi r$ (1), where B is the magnetic field strength, M the mass per unit length of the plasma front, and P the initial pressure of

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Calculation of ...

the gas. Since $M = \pi\varrho(R^2 - r^2)$ and $B = 4\pi I/c$, it follows from Eq. (1) that $\frac{d}{dt}\left[(R^2 - r^2)\frac{dr}{dt}\right] = -\frac{2r}{\varrho}\left(\frac{2\pi I^2}{c^2} - P\right)$ (2). This equation can be solved if the rule underlying the variation of I is known. If the solenoid is fed by a condenser bank, then the current strength is given by $\frac{1}{c^2}\frac{d}{dt}(LI) + RI + \frac{1}{C_o}\int_0^t Idt = \frac{V_o}{l}$ (3), where I is the current strength per unit length of the solenoid, l the length of the solenoid, V_o the initial voltage of the condensers, L the inductance, R the ohmic resistance, and C_o the capacitance in the solenoid circuit. The inductance L of the external circuit grows as the plasma approaches the axis, and may be written as $L = L_o + L_r = L_o + (4\pi^2/l)(R^2 - r^2)$ (4), where L_o is the constant component, L_r the component growing from 0 to $(4\pi^2/l)(R^2 - r_o^2)$ as the plasma approaches the axis; (2), (3), and (4) can be used to determine the velocity of the plasma for any instant from the beginning of the process up to the first

Calculation of ...

pinch of the plasma column. The equation for a linear pinch derived by M. A. Leontovich and S. M. Osovets (Atomnaya energiya, No. 3, 81, 1956) is mentioned. The second part of the present paper deals with the solution of the equation of motion. For the period of convergence of the plasma one obtains $t \ll T/4$, where T is the oscillation period of the circuit with maximum inductance, and the ohmic resistance in the circuit is low. The time dependence of the current strength is then given by $I = (c^2 V_0/IL)t$. In addition, $B^2/8\pi = 2\pi I^2/c^2 \gg P$ holds. For the equation of motion one obtains

$$\frac{d}{dt}\left[(R^2 - r^2)\frac{dr}{dt}\right] = -\frac{4\pi c^2 V_0^2 t^2 r}{\rho l^2 L_0^2\left[1 + \frac{4\pi^2 R^2}{lL_0}\left(1 - \frac{r^2}{R^2}\right)\right]^2}. \qquad (7) \qquad (7),$$

and after introducing the dimensionless quantities

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Calculation of ...

$$X=\frac{r}{R}, \qquad (8)$$ (8),

$$\tau=\left(\frac{4\pi c^2 V_0^2}{\rho L_0^2 l^2 R^2}\right)^{1/4} t, \qquad (9)$$ (9),

$$A=\frac{4\pi^2 R^2}{l L_0}. \qquad (10)$$ (10)

the equation of motion in dimensionless variables reads

$$\frac{d}{d\tau}\left[(1-X^2)\frac{dX}{d\tau}\right] = -\frac{\tau^2 X}{\left|1+A(1-X^2)\right|^2} \quad (11).$$ This relation can be solved by numerical integration. For $A \leqslant 0.5$ its solution is

$$X=1-0.29\tau^3+(6.7\cdot 10^{-3}A-2.5\cdot 10^{-3})\tau^4- \qquad (12).$$

$$-(7\cdot 10^{-3}A^2+2.4\cdot 10^{-3}A-3\cdot 10^{-4})\tau^6. \qquad (12).$$

With the notation $k = (4\pi c^2 V_o^2/\varrho L_o^2 l^2 R)^{1/4}$ one obtains

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Calculation of ...

$$v = k^2Rt\left[0.58 - (2.7 \cdot 10^{-1}A - 10^{-2})k^2t^2 + \right.$$
$$\left. + (4.2 \cdot 10^{-2}A^2 + 1.45 \cdot 10^{-2}A - 1.8 \cdot 10^{-3})k^4t^4\right]. \quad (13)$$ (13).

The maximum velocity on the axis is reached at $t = t_{max} = \tau_{max}/k$, and is equal to

$$v_{max} = kR\tau_{max}\left[0.58 - (2.7 \cdot 10^{-1} - 10^{-2})\tau^2_{max} + \right.$$
$$\left. + (4.2 \cdot 10^{-2}A^2 + 1.45 \cdot 10^{-2}A - 1.8 \cdot 10^{-3})\tau^4_{max}; \right. \quad (14)$$ (14).

From this it follows in practical units that

$$v_{max} = kRf_1(A) = 2.94 \cdot 10^3 \left(\frac{V_0}{R}\right)^{1/2} \rho^{-1/2} A^{1/2} f_1(A) =$$ (15),
$$= 3.92 \cdot 10^3 V_0^{1/2} M_0^{-1/2} A^{1/2} f_1(A); \quad (15)$$

where $M_0 = \pi_0 R^2$ is the mass per unit length of the plasma column. For $A \leqslant 0.1$ (11) has the solution

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Calculation of ...

$$X = 1 - 0.29\tau^2; \quad (16) \qquad (16),$$

$$v = 0.58k^2R\dot{\tau} = \frac{2V_{0c}}{L_0 l \sqrt{\rho}} t; \quad (17) \qquad (17),$$

$$v_{max} = 0.58kR\tau_{max} = 2\left(\frac{V_0 R_c}{L_0 l}\right)^{1/6} \rho^{-1/4} \quad (18) \qquad (18)$$

with $\tau_{max} = 1.87$, and in practical units

$$v_{max} = 6.35 \cdot 10^{-1}\left(\frac{V_0 R}{L_0 l}\right)^{1/3} \rho^{-1/4} = 4.26 \cdot 10^3 V_0^{1/2} M_0^{-1/4} A^{1/4}. \quad (19) \qquad (19).$$

(16)-(19) are valid at practically constant inductance of the circuit. If inductance varies by a factor of up to one-half with respect to the initial value, then (12)-(15) will be valid. At $A > 0.5$ it was not possible to obtain a convenient approximate solution, and (11) was numerically integrated within this range

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Calculation of ...

$$v_{max} = 5.8 \cdot 10^{-1} \left(\frac{V_0 R}{L_0 l}\right)^{1/4} \rho^{-1/4} f(A) = \quad (20)$$

$$= 3.9 \cdot 10^3 V_0^{1/4} M_0^{-1/4} A^{1/4} f(A). \quad (20)$$

holds for the maximum velocities of convergence. Discussion of results: The general character of radial plasma motion is determined by the moving force that increases with increasing pinch and competes with the mass of the plasma. Accelerations are highest in the neighborhood of the walls (at $r \sim R$). Velocities of motion close to the maximum value are attained already at $X \sim 0.75$ to 0.95. The maximum velocities v_{max} are attained on the axis of the system v_{max} amounts to $V_0^{1/2} \rho^{-1/4}$, irrespective of the geometrical conditions of the system. This dependence holds for all systems of plasma acceleration at which $I \sim t$ and $H^2/8\pi > P$. In the case of radial plasma induction by an induction pinch, a plasma having an initial temperature of 10^7-10^8 °K can be obtained in small spatial regions. For the purpose of maintaining high values of v_{max} with a large plasma volume, it is advisable in practice to extend the length l of the system and to have a

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Calculation of ...

small radius R. Under real conditions, part of the magnetic field penetrates into the plasma. Another difference between practice and theory is that of a shock runs in front of the plasma front. It is therefore possible that the rate of radial contraction of the plasma decreases by a factor of $\sqrt{2}$ with respect to the theoretical value. Experimental and computed data for different experimental conditions are intercompared in a table. The computed values of v_{max} are 1.5-2 times higher than the experimental ones. This difference becomes insignificant when the temperature rise in the shock wave is taken into account. I. F. Kvartskhava is thanked for her interest in the work, and M. Z. Maksimov for discussions. There are 4 figures, 1 table, and 3 Soviet-bloc references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN Gruz. SSR Sukhumi (Institute of Physics and Technology, AS Gruzinskaya SSR, Sukhumi)

SUBMITTED: May 16, 1960

Card 8/10

S/120/62/000/001/010/061
E032/E514

AUTHORS: Murguliya, G.Ye., Plyutto, A.A. and Rozman, I.M.

TITLE: Recording of neutrons from pulsed sources

PERIODICAL: Pribory i tekhnika eksperimenta, no.1, 1962, 54-55

TEXT: The neutron yield of pulsed sources is usually measured with scintillation counters. Both the photomultiplier in the scintillation counter and the preamplifying circuits may be affected by stray magnetic fields due to the neutron source. In the present paper the authors describe a method of recording neutron spectra which does not involve the use of a preamplifier. The detector consists of a scintillation counter and the OK-17-M oscillograph equipped with a photographic camera. The counter-probe unit incorporates the ФЭУ-24 (FEU-24) photomultiplier with a plastic scintillator (diameter of 70 mm, height 70 mm). The probe is surrounded by a brass and lead screen. The current pulse from the photomultiplier is fed directly into the input of the oscillograph amplifier. The time distribution and the integral neutron yield of pulsed sources can be deduced from the appearance of the oscillographic records. With an effective

solid angle of 10^{-3} the lower limit of sensitivity is said to be 5000 neutrons/pulse. The method has been used with the spark chamber described by the first two of the present authors in Ref.4 (PTE, 1961, No.5, 28). There are 1 figure and 1 table.

SUBMITTED: June 20, 1961

Card 2/2

L 12915-63 BDS/EWT(1)/EWG(k)/ES(w)-2 AFFTC/ASD/ESD-3/AFWL/SSD
Pz-4/Pab-4/Pi-4/Po-4 AT/IJP(C)
ACCESSION NR: AP3001331 S/0057/63/033/006/0715/0718

84
78

AUTHOR: Suladze, K. V.; Plyutto, A. A.

TITLE: Some peculiarities of confluent plasma jets in an induction discharge

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 33, no. 6, 1963, 715-718

TOPIC TAGS: plasma, plasma jets, plasmoid

ABSTRACT: Plasmoids 3-4 cm in diameter with a lifetime of 5-6 microseconds were formed by the radial confluence of six plasma jets. These plasmoids have a certain magneto-hydrodynamic stability, and the jet instabilities observed in theta-pinches are absent. The authors believe it possible to obtain longer lived plasmoids by similar means, and that radical injection may be useful for obtaining the initial plasma for high temperature studies. The plasma jets were formed in six glass cups fastened to the inner faces of the hexagonal vacuum chamber. The chamber and the cups are surrounded by a copper strip which carries the 50 kc discharge of two 10 microfarad condensers charged to 80 kv. Each cup constitutes an induction plasma accelerator of a type discussed earlier (N.F. Kvartskhav, P.D. Meladze and K.V. Suladze, ZhTF, 30, 289, 1960). The development and confluence of the jets were photographed with a SFR-2M high speed camera operating at two frames per microsecond. Probes were used to measure the magnetic fields and currents,

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ACCESSION NR: AP3001331

6

both on the axis of the chamber and near the walls (between the cups). As the jets approach the axis of the chamber their motion is not quite radial (this is clearly visible in the photographs); thus they impart a rotary motion to the plasmoid formed when they meet. The field and current measurements indicate that a ring current is formed less than 4 cm from the axis. After some initial compression, the plasmoid expands and spreads out along the magnetic lines of force at the rate of about 10 sup 6 cm/sec. "In conclusion, we feel obliged to thank I.F. Kvartskhav, A.M. Romanovskiy, V.T. Tolok and E.M. Barkhudarov for valuable discussions, and B.M. Nekry*lov and V.F. Molchankin for aid in performing the experiments." Orig. art. has: 4 figures.

ASSOCIATION: none

SUBMITTED: 05Jun62 DATE ACQ: 01Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 003 OTHER: 001

Card 2/2

L 21831-65 EWT(l)/EWG(k)/EPA(sp)-2/EPA(w)-2/EEC(t)/T/EEC(b)-2/EWA(m)-2 Pz-6/
Pc-4/Pab-10/Pi-4 SSD/AFWL/ASD(a)-5/SSD(b)/AEDC(b)/ASD(f)-3/ASD(p)-3/APETR/
RAEM(a)/ESD(gs)/IJP(c) AT

ACCESSION NR: AP5000834 S/0057/64/034/012/2120/2128

AUTHOR: Belensov, P. Ye.; Kapin, A. T.; Plyutto, A. A.; Ryzhkov, V. N.

TITLE: Instability of current in separation of charged particles from plasma

SOURCE: Zhurnal tekhnicheskoy fiziki, v, 34, no. 12, 1964, 2120-2128

TOPIC TAGS: plasma, plasma instability, plasma flow, plasma relaxation oscillation, charged particle separation

ABSTRACT: Some results are presented of experimental investigations of stability conditions in a plasma flowing from an orifice under the action of an electric field. Specifically, the case of the separation of the electronic component from plasma is described. Some data concerning the peculiarities of the separation of the ionic components are given. The plasma was generated by a stationary arc in vacuum, between a magnesium cathode and a circular anode, with an arc current range of 25 to 250 amp at voltages up to 15 v. Two orifices, the first of variable diameter (from 0.5 to 2.5 cm) and the second with a fixed diameter of 14 mm, could be put under a voltage difference

Card 1/3

L 21831-65

ACCESSION NR: AP5000834

up to 30 kv over a capacitor. The plasma concentration in the area of the first orifice at zero voltage was about (1 to 3) x 10^{11} particles per cm^3 with an electron temperature between 0.5 and 1.0 ev. The arrangement made it possible to maintain a quasi-stationary field condition at a slowly changing voltage difference. The different characteristics of plasma flow—the stationary flow, the transitory regime, and the unstable flow—were distinguished. The first displays the dependence of the current only on the fluctuation of the arc. The transitory regime is characterized by the possibility of relaxation oscillations, which may attenuate; the current does not depend appreciably on the inter-orifice voltage. With the unstable flow, modulation of the current between the orifices takes place within the whole range of applied inter-orifice voltages; the mean current value increases slowly with the voltage. The transition from one regime to another can be effected by a change of the arc current and by the initial voltage applied to orifices, i. e. initial field strength. Both possibilities were investigated and the results plotted. The dependencies of the form, period, and amplitude of the relaxation oscillations were studied in some detail. The relationships are

Card 2/3

L 21831-65

ACCESSION NR: AP5000834

discussed in some detail and analytical expressions proposed. Orig. art. has: 9 figures and 3 formulas.

ASSOCIATION: none

SUBMITTED: 12Dec63 ENCL: 00 SUB CODE: ME, EM

NO REF SOV: 012 OTHER: 002 ATD PRESS: 3166

Card 3/3

L 13918-65 EWT(l)/EWG(k)/EWT(m)/EPA(sp)-2/EWA(d)/EPR/EPA(w)-2/EEC(t)/T/
EWP(t)/EWP(b)/EWA(m)-2/EEC(b)-2 Pz-6/Pc-4/Pab-10/Pad/Ps-4/Pi-4 IJP(c)/AEDC(b)/
[illegible] S/0056/64/047/002/0494/0507

ACCESSION NR: AP4043623

AUTHOR: Plyutto, A. A.; Ry*zhkov, V. N.; Kapin, A. T.

TITLE: High speed plasma currents in vacuum arcs

SOURCE: Zh. eksper. i teor. fiz., v. 47, no. 8, 1964, 494-507

TOPIC TAGS: vacuum arc, plasma arc, plasma jet, plasma flow, ion energy, plasma charged particle distribution, cathode spot

ABSTRACT: This work is a sequel of a mechanism of ambipolar acceleration of ions by electrons, previously proposed by the authors (ZhETF v. 39, 1589, 1960), and is aimed at obtaining more precise experimental data. Tests were made of high-speed plasma currents in stationary vacuum arcs. The apparatus and the means adopted to stabilize the arcs are described. The plasma velocities were measured for cathodes made of Mg, Al, Ni, Cu, Ag, Zn, Cd, Pb, and brass (LS-59). The average energies of the ions of metals of the first group (Zn,

1/3

Cd, Pb) were 5--10 ev, and those of the second group (Mg, Al, Ni, Cu, Ag) were 20--40 ev. The experiments also yielded sufficiently accurate values of the average velocity, the energy spectrum, and the plasma composition. Mass spectroscopy has shown the presence of appreciable amounts of doubly and triply charged ions in plasmas of the second group of metals. A model of the near-cathode region, with a peaked potential in the cathode-spot plasma, is proposed to explain the origin of the high-speed plasma streams. "The authors thank L. I. Chibanova for help with the work." Orig. art. has: 6 figures, 11 formulas, and 3 tables.

ASSOCIATION: None

SUBMITTED: 03Oct63 ENCL: 01

SUB CODE: ME NO REF SOV: 005 OTHER: 018

L 13918-65
ACCESSION NR: AP4043623

ENCLOSURE: 01

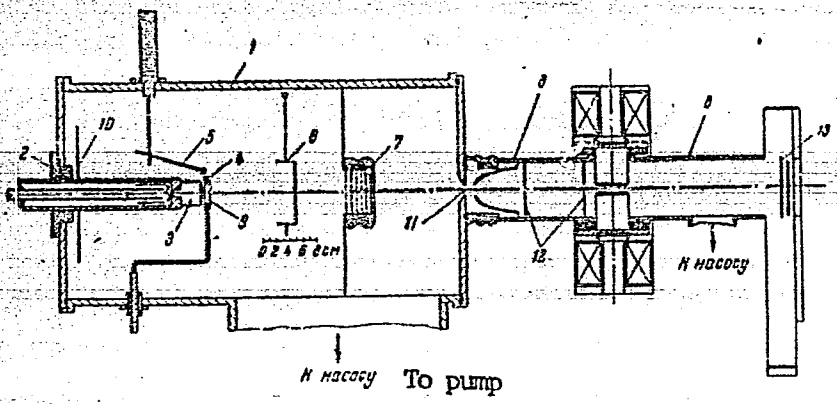

Fig. 1. Diagram of experimental setup:

1 - chamber, 2 - insulator, 3 - cathode, 4 - anode, 5 - tungsten rod, 6 - pendulum, 7 - probe-analyzer, 8 - mass-spectroscopic analyzer, 9 - cathode working surface, 10 -disc, 11 - aperture, 12 - aperture, 13 - screen

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L 59622-65 EWT(m)/EPF(n)-2/EWA(h) Pu-4 DM

ACCESSION NR: AP5012467 UR/0089/65/018/004/0336/0342
621.373.2:539.172.84

AUTHORS: Murguliya, G. Ye.; Plyutto, A. A.

TITLE: Pulsed neutron generator

SOURCE: Atomnaya energiya, v. 18, no. 4, 1965, 336-342

TOPIC TAGS: neutron generator, pulsed generator, spark ion source, neutron flux, neutron yield, deuterium reaction, deuterium tritium reaction

ABSTRACT: The article describes the results of physical research done with a neutron generator with a spark ion source. The neutron generator operates on the same principle as a model described by the authors earlier (Pribory i tekhnika eksperimenta No. 5, 28, 1961), with some modifications, and produces pulsed neutron fluxes by means of the reactions D + D and D + T, with an average yield of $\sim 7 \times 10^6$ and 10^9 neutrons per pulse, respectively. The total pulse duration is ~100 -- 250 μsec and the accelerating-gap voltage is ~110 kV. The

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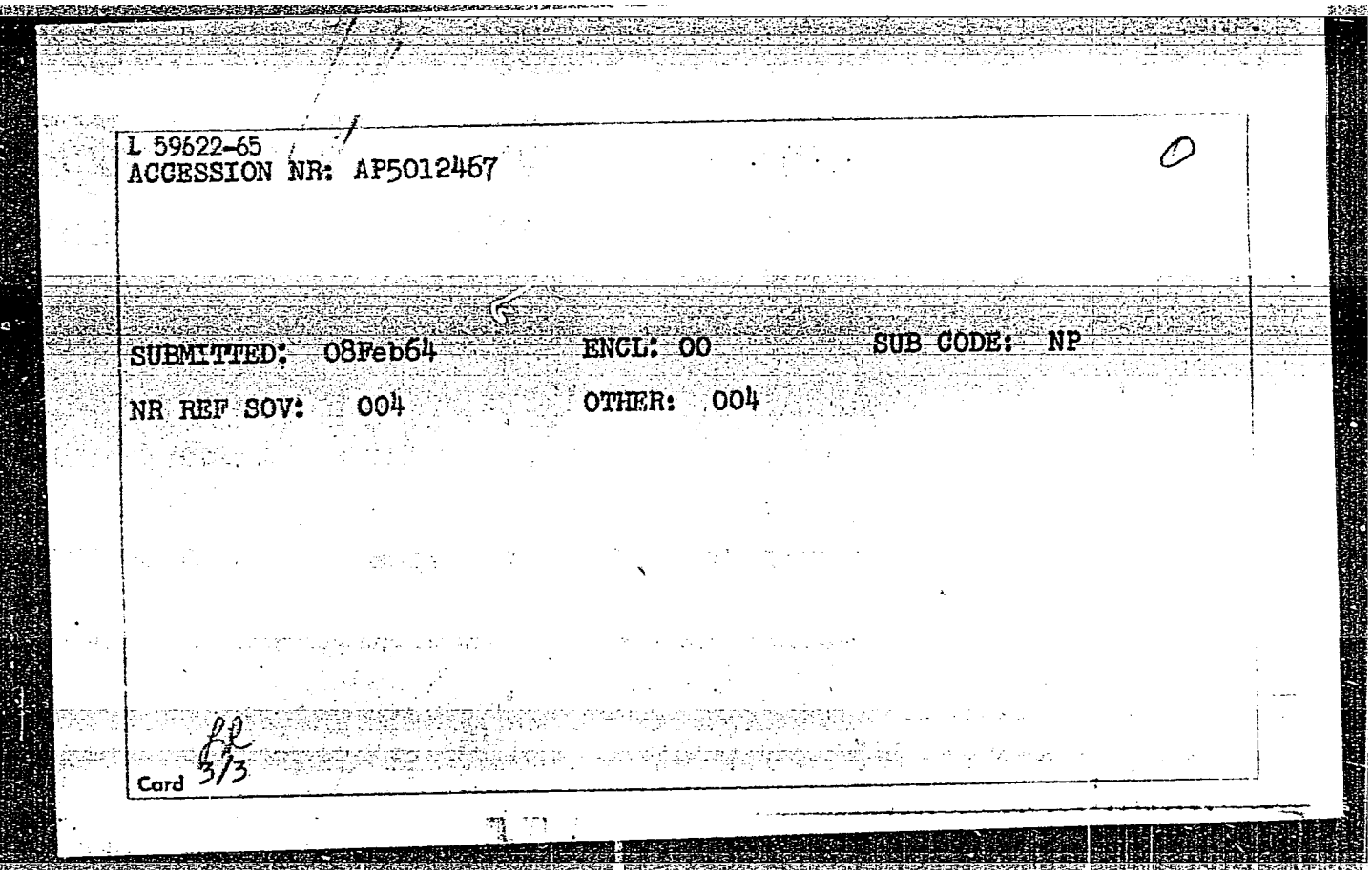
apparatus and the experimental procedure are described in detail. The apparatus was used to investigate short-lived isotopes and isomers with half life ~ 1 millisecond produced in (n, 2n) reactions on several nuclei. The average yield of neutrons from the D + D reaction was measured by the silver activation method, while that from the D + T reaction was measured by the copper activation method. Other characteristics measured were the mass composition of the ion beam, the ion and electron currents in the accelerating gap, the dependence of the relative deuterium content and of the neutron yield on the number of pulses, the dependence of the neutron yield in the pulse on the spark power, and the stability of the neutron yield over a prolonged series of pulses, and the dependence of the target fatigue on the number of pulses. It is noted that the new version of the generator is superior in its characteristic than the older one. 'The authors thank I. P. Selinov and I. M. Rozman for interest in the work and for valuable advice.'

ASSOCIATION: None



L 59622-65
ACCESSION NR: AP5012467

SUBMITTED: 08Feb64 ENCL: 00 SUB CODE: NP

NR REF SOV: 004 OTHER: 004

Card 3/3

L 60356-65 EWT(l)/EWT(m)/EPF(n)-2/EWG(m)/EPA(w)-2/EWP(t)/EWP(b) Pz-6/
Po-4/Pi-4 IJP(c) JD/JG/AT

ACCESSION NR: AP5018312 UR/0057/65/007/1298/1307

AUTHOR: Suladze, K. V.; Plyutto, A. A.

TITLE: Emission properties of a vacuum spark plasma. 1. Ion beams

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 35, no. 7, 1965, 1298-1307

TOPIC TAGS: spark gap, vacuum, ion source, deuterium, hydrogen

ABSTRACT: The authors have investigated a vacuum spark as a source of hydrogen and deuterium ions. The spark source was a slightly modified form of a previously described source (A.A.Plyutto, K.N.Kervalidze, and A.F.Kvartskhava, Atomnaya energiya, 8, 3, 1957). The spark discharge took place in the 5 mm gap between a copper rod within a porcelain tube and a tungsten or tantalum plate having a 4 mm diameter opening. A channel in the copper electrode contained Plexiglas or LiD to provide hydrogen or deuterium ions, respectively. Two sources were investigated, of which one had one such gap and the other had six. The power for the spark was provided by a 50 kV source and a voltage doubler employing two 0.035 microfarad capacitors. Spark potentials up to about 85 kV were employed. The extractor electrode had a 3.5 cm diameter opening covered with a steel grid of 66% transparency. Extraction potentials up to 20 kV were employed. The extract-

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L 60356-65

ACCESSION NR: AP5018312

ed ions were either caught in a 6 cm diameter Faraday cup, or the central portion of the ion beam was isolated by collimating holes and examined with a Thompson mass spectrometer. The measurements of total ion current and of the ion current to the Faraday cup were supplemented and checked by measurements of the temperature rise of a copper foil collector electrode. Total ion currents up to 100 A were achieved. The duration of the ion current pulse varied from 0.5 to 5 microsec, depending on the conditions. The pulse was frequently limited by breakdown in the extraction gap. The total ion current at maximum was independent of the extraction potential. This indicates, in agreement with results of investigations reviewed by M.D.Gabovich (PTE, 2, 5, 1963), that the ion current is not space charge limited. It is suggested that the variation of ion current with extraction potential observed by S.N.Popov (ZhTF, 31, 12, 1431, 1961) may have been due to secondary effects in the source channel. The divergence of the ion beam was determined by observing the current to the Faraday cup at different distances from the source. The divergence of the beam was considerable, but it was much less than was calculated theoretically. It is suggested that this discrepancy may be due to partial neutralization of the space charge by secondary electrons from the extractor grid. The mass spectrometer observations showed that the central portion of the beam contained 80% deuterium ions or 90% hydrogen ions,

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L 60356-65

ACCESSION NR: AP5018312

7

depending on the material in the copper electrode channel. It is concluded that the chief disadvantage of the vacuum spark ion source is the difficulty of focusing the beam, and that the source is very promising for use with large pulsed resonance accelerators. "In conclusion, the authors express their gratitude to T.P.Starodubtseva for participating in the initial stages of the work, to Yu.V. Kursanov, S.M.Temchin, and G.P.Mkheidze for discussions, and to B.M.Nekrylov, D.A.Shkhimyan, and V.Emukhvari for practical assistance." Orig. art. has: 4 formulas, and 7 figures.

ASSOCIATION: none

SUBMITTED: 25Jul64 ENCL: 00 SUB CODE: ME, NP

NO REF SOV: 017 OTHER: 012

Card 3/3

KAFAROV, V. V.; PLYUTTO, V. P.; PEROV, V. L.

Development of mathematical descriptions of the standard processes in chemical technology. Khim prom no. 3:218-221 Mr '64. (MIRA 17:5)

PLYUTTO, V. P.

Cand Tec Sci, Diss -- "Automation of drying-absorption departments of sulfuric acid industries". Moscow, 1961. 12 pp, 21 cm (Min of Higher and Inter Spec Educ RSFSR. Moscow Inst of Chem Machine Building), 220 copies, Not for sale (KL, No 9, 1961, p 183, No 24360).
/61-52319/

PLYUTTO, V.P. (Moskva)

Automatic control of drying and absorption sections of contact sulfuric acid production. Izv. AN SSSR. Otd.tekh.nauk. Energ. i avtom no.4:126-137 Jl-Ag '59. (MIRA 12:11)
(Sulfuric acid) (Automatic control)

PLYUYKO, K. S., Cand Med Sci (diss) – "Changes in the motor-kinesthetic analysor of patients with schizophrenia under the influence of insulin therapy". Simferopol', 1960. 19 pp (Crimean State Med Inst im I. V. Stalin), 200 copies (KL, No 14, 1960, 138)

PLYWACZEWSKA, Irena

Delivery in a case of double uterus. Polski tygod. lek. 14 no.9: 396-398 2 Mar 59.

1. Z Oddzialu Poloznicze-Ginekologicznego Instytut Gruzlicy w Warszawie; kierownik: prof. dr med. M. Bulska. Adres: Warszawa, ul. Plocka 26, Inst. Gruzlicy.

(UTERUS, abnorm.
double uterus with pregn., management of delivery (Pol))
(DELIVERY
in double uterus (Pol))
(PREGNANCY, in various dis.
double uterus (Pol))

PLYWACZEWSKA, Irena

Diagnostic value of bacteriological examination (smears and cultures) in female genital tuberculosis. Gruzlica 24 no.3: 191-196 Mar 56.

1. Z Oddzialu Poloznicze-Ginekologicznego Instytutu Gruzlicy Kierownik: prof. dr. M. Bulska, Dyrektor: prof. dr. J. Misiewicz, Warszawa, Plocka 26.
(TUBERCULOSIS, FEMALE GENITAL, diagnosis, bacteriol. methods (Pol))

2391. PŁYWACZEWSKA I. "Wartość diagnostyczna badań bakteriologicznych (preparatów bezpośrednich i posiewów) w gruźlicy narządu rodnego. Diagnostic value of bacteriological examinations (smears and cultures) in female genital tuberculosis GRUŹLICA 1956, 24/3 (191-196) Tables 1

The following examinations were carried out in 17 cases of tuberculous adnexitis: (1) Cultures from the menstrual flow, uterine mucosa, tissue of the ovaries and the oviducts. (2) Histological examinations of the uterine mucosa and of the slices from the adnexa. The following conclusions are drawn from the correlated histological and bacteriological findings and the clinical diagnosis: the diagnosing of female genital tb through detection of tb bacilli before treatment is improbable. More frequently tb bacilli can be detected in the surgically excised adnexa. Histological examination proved more valuable for diagnostic purposes; in some cases in which histological examination gives negative results, the cultures may prove useful for establishing the correct diagnosis.

(XV, 10[5])

PLYWACZEWSKA, IRENA

BULSKA, Malgorzata; MAZUREK, Jan; PLYWACZEWSKA, Irena.

Significance of isonicotinic acid hydrazide in the treatment of female genital tuberculosis. Gruzlica 23 no.11:801-806 Nov. '55.

1. Z Oddzialu Poloznicze-Ginekologicznego Instytutu Gruzlicy Kierownik: prof. dr M. Bulska. Dyrektor: prof. dr J. Misiewicz Warszawa, ul. Plocka 26.

(TUBERCULOSIS, FEMALE GENITAL, therapy, isoniazid)
(NICOTINIC ACID ISOMERS, therapeutic use, isoniazid in female genital tuberc.)

KREYSLER, A.A., kand.tekhn.nauk; PLYZHNIKOV, A.I., kand.tekhn.nauk

Present state and future development of hydraulic tractor transmission systems. Trakt.i sel'khozmash. 31 [i.e.32] no.11:3-5 N '62.(MIRA 15:12)

1. Gosudarstvennyy soyuznyy nauchno-issledovatel'skiy traktornyy institut.

(Tractors—Transmission devices)

Plyzhnikov, I.S.

ACHIERAN, N.S., professor, doktor tekhnicheskikh nauk; LYUKSHIN, V.S., kandidat fiz.-mat. nauk; NIBERG, N.Ya., kandidat tekhnicheskikh nauk; OBMORSHEV, A.N., doktor tekhnicheskikh nauk; PLYZHNIKOV, I.S., kandidat fiz.-mat. nauk; MARKUS, M.Ye., inzhener, redaktor; KARGANOV, V.G., inzhener, redaktor graficheskikh rabot; SOKOLOVA, T.F., tekhnicheskiy redaktor.

[Handbook of machine construction in 6 volumes] Spravochnik mashinostroitelia v shesti tomakh. Izd. 2-e, ispr. i dop. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry. Vol. 1. 1954. 567 p. (MIRA 8:1)
(Mathematics) (Mechanics)

K-

CZECHOSLOVAKIA/Optics -

Abs Jour : Ref Zhur Fizika, No 3, 1960, 7316

Author : Plzak
Inst : -
Title : On the Activity of the Society for Spectroanalysis Research

Orig Pub : Hutn, listy, 1959, 14, No 1, 60

Abstract : A brief contents is given of the papers delivered to the June 1958, meeting of the society.
1) Rapid determination of niobium and silicon in 18-8 steels; 2) possibility of employing spectroanalysis in the ceramic industry; 3) application of a spectrograph to the study in the changes of the chemical composition of surface layers of steel.

Card 1/1

PROCESSES AND PROPERTIES INDEX

A-3

BC

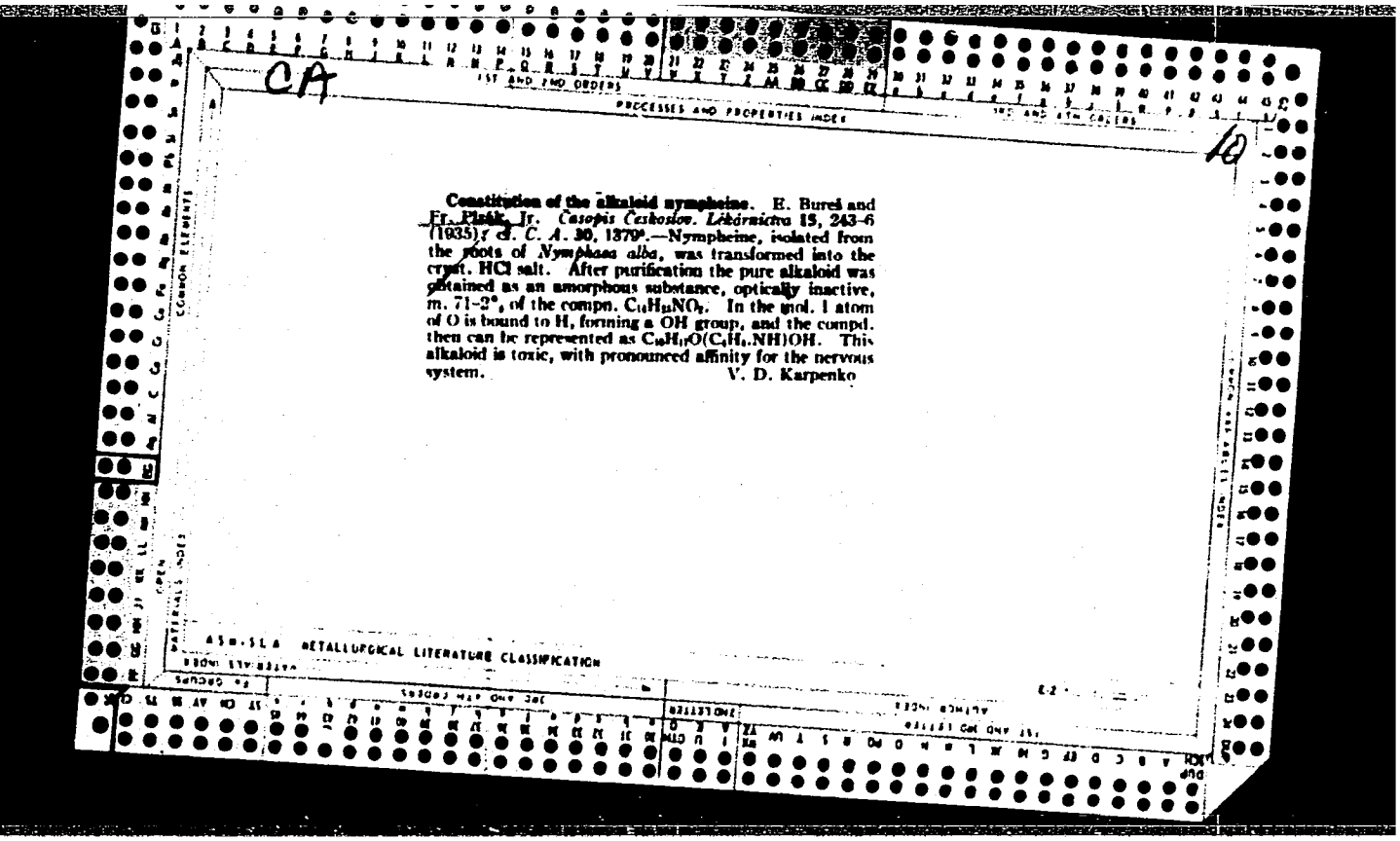
Constitution of nymphaeine. E. Hunka and F. Plzák, jun. (Časopis českoslov. Lék., 1935, 15, 223—236, 242—247; Chem. Zentr., 1936, i, 3340).—An improved method of isolation from roots of *Nymphaea alba* is described. The crude alkaloid is amorphous, m.p. 76—77°, but forms a cryst. *hydrochloride*, m.p. 230°, and *sulphate*; the regenerated nymphaeine has m.p. 71—72°, is a *sec*. base, $C_{16}H_{23}O_2N$, and has a pyrrole nucleus and 1 OH. H. N. R.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PROCESSES AND PROPERTIES INDEX

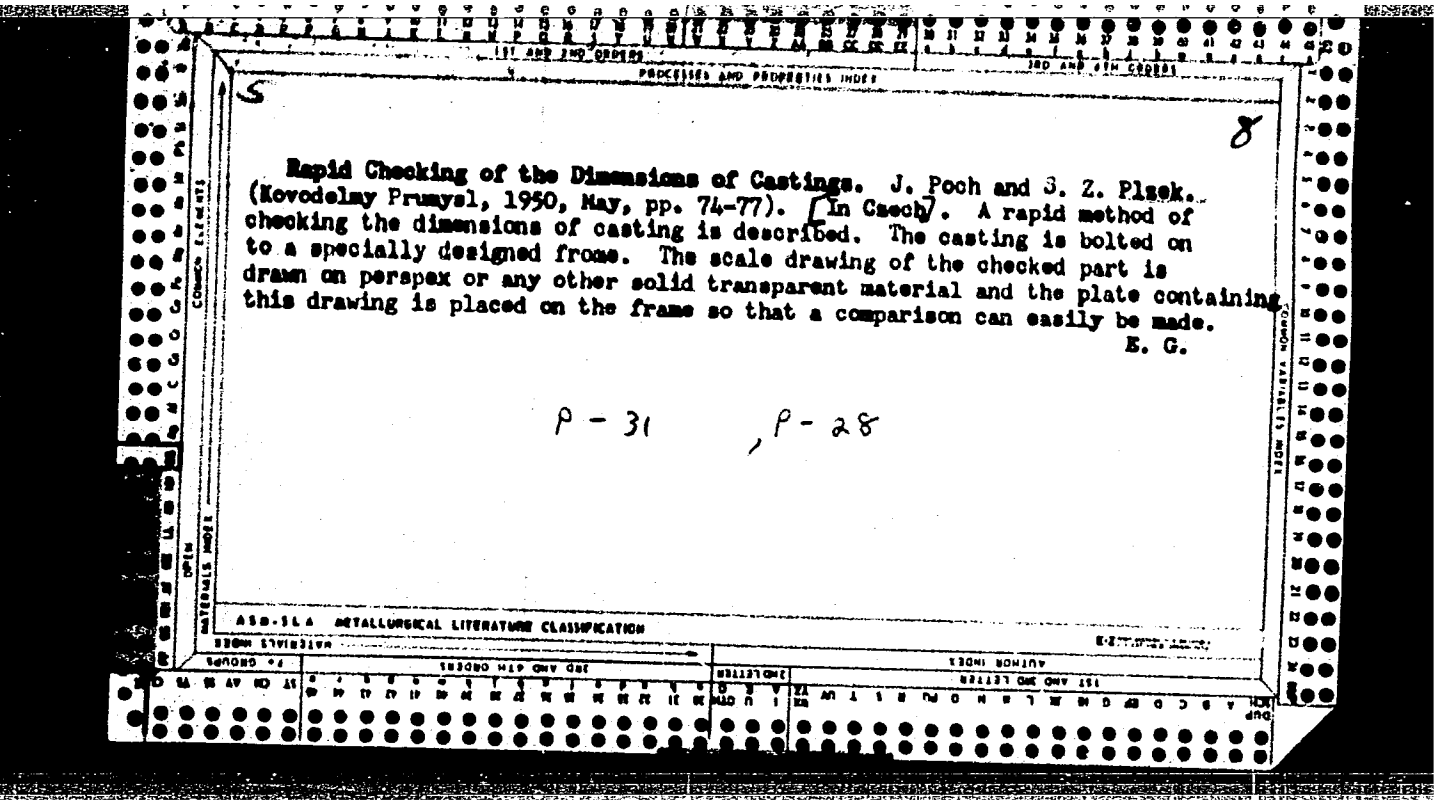
The constitution of the alkaloid nympheine. J. Hutes and Fr. Plzák, Jr. *Casopis Ceskoslov. Lekarnictva* 15, 223-6(1935). The alkaloid, *nympheine*, was extd. from the dried roots of *Nymphaea alba* L. To 1 kg. of dried roots 10 l. of 1.5% HCl was added and the material left to stand for 7-8 days after which the ext. was pressed out of the roots and filtered. To the filtrate a satd. soln. of $Ba(OH)_2$ was added until a ppt. had formed. After standing the clear supernatant liquid was poured off and the remaining ppt. washed with water. This procedure was repeated several times, the ppt. then being placed on a filter, washed several times more and finally dried in air. The finely pulverized material was then extd. by petr. ether in a Soxhlet app. The exts. obtained were combined, almost all the petr. ether distd. off and the thick soln. extd. with 5% H_2SO_4. The acid layer was sepd., decolorized with animal charcoal, made alk. with dil. ammonia and the nympheine which had sepd. was filtered off, washed with water and dried. Nympheine is a very fluffy amorphous substance easily sol. in $CHCl_3$, benzene, ether and AmOH. Its m. p. is 76-7° and formula is $C_{14}H_{24}NO_2$. Cf. *C. A.* 28, 5460[1]. V. D. Karpenko

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Constitution of the alkaloid nymphéine. E. Bureš and Fr. Plášek, Jr. *Časopis Českoslov. Lékárnictva* **15**, 243–6 (1935); cf. *C. A.* **30**, 1379⁹.—Nymphéine, isolated from the roots of *Nymphaea alba*, was transformed into the cryst. HCl salt. After purification the pure alkaloid was obtained as an amorphous substance, optically inactive, m. 71–2°, of the compn. $C_{11}H_{13}NO_2$. In the mol. 1 atom of O is bound to H, forming a OH group, and the compd. then can be represented as $C_6H_{11}O(C_5H_4.NH)OH$. This alkaloid is toxic, with pronounced affinity for the nervous system.

V. D. Karpenko



5

8

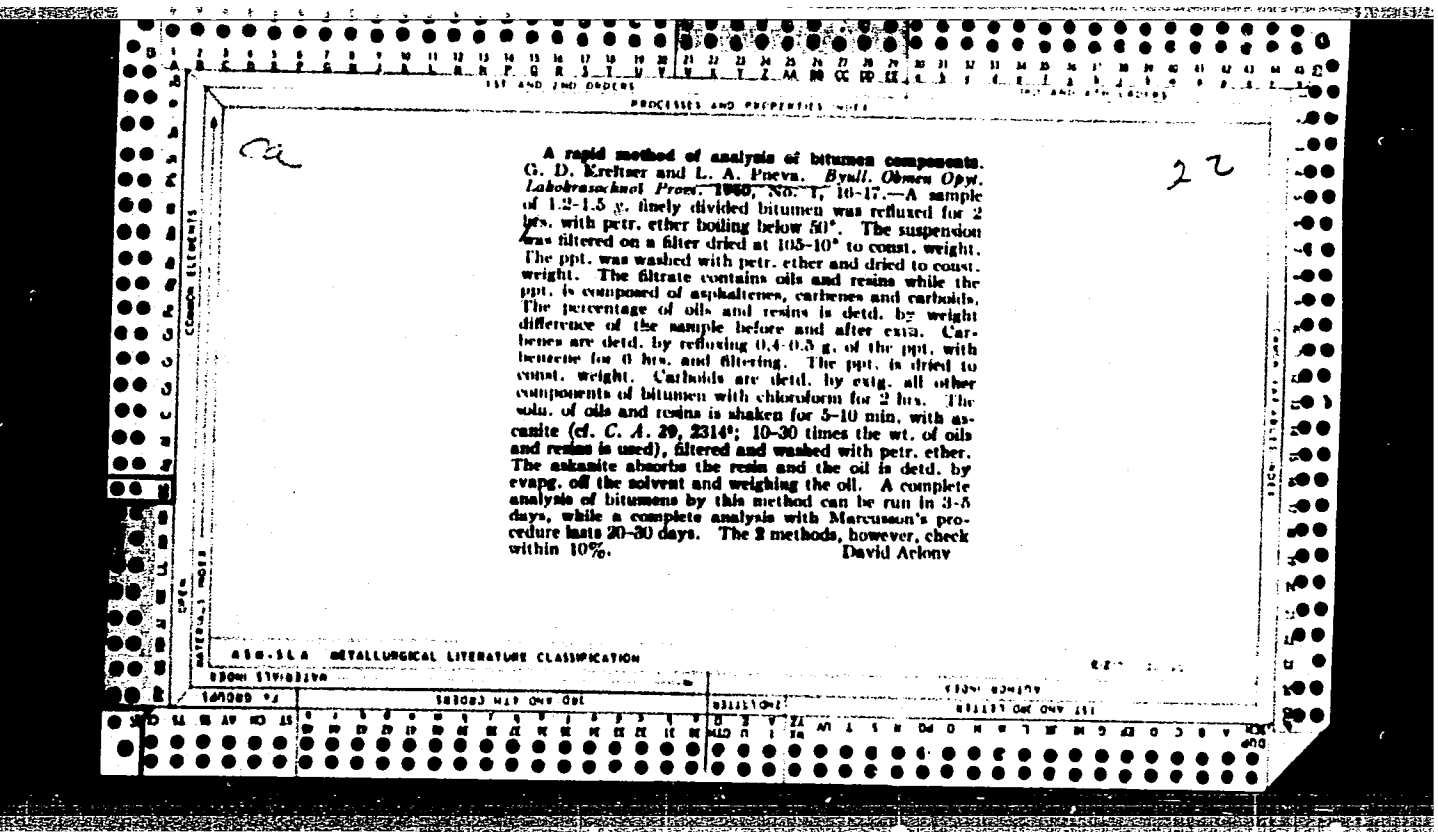
Rapid Checking of the Dimensions of Castings. J. Poch and S. Z. Plasek. (Kovodelny Prumysl, 1950, May, pp. 74-77). [In Czech]. A rapid method of checking the dimensions of casting is described. The casting is bolted on to a specially designed frame. The scale drawing of the checked part is drawn on perspex or any other solid transparent material and the plate containing this drawing is placed on the frame so that a comparison can easily be made.

E. G.

P - 31 , P - 28

PRIVA, L. A.

S. A. URANOV, Byull. Obmena Opyt. Lakokrasochnoi Prom., 1939, No. 8, 22-3



A rapid method of analysis of bitumen components. G. D. Kreitser and L. A. Pneva. *Byull. Obmen Opyt. Laboratorskaol Proiz.* 1960, No. 1, 16-17.—A sample of 1.2-1.5 g. finely divided bitumen was refluxed for 2 hrs. with petr. ether boiling below 50°. The suspension was filtered on a filter dried at 105-10° to const. weight. The ppt. was washed with petr. ether and dried to const. weight. The filtrate contains oils and resins while the ppt. is composed of asphaltenes, carbenes and carboids. The percentage of oils and resins is detd. by weight difference of the sample before and after extn. Carbenes are detd. by refluxing 0.4-0.5 g. of the ppt. with benzene for 6 hrs. and filtering. The ppt. is dried to const. weight. Carboids are detd. by extg. all other components of bitumen with chloroform for 2 hrs. The soln. of oils and resins is shaken for 5-10 min. with askanite (cf. *C. A.* **29**, 2314°; 10-30 times the wt. of oils and resins is used), filtered and washed with petr. ether. The askanite absorbs the resin and the oil is detd. by evapg. off the solvent and weighing the oil. A complete analysis of bitumens by this method can be run in 3-5 days, while a complete analysis with Marcusson's procedure lasts 20-30 days. The 2 methods, however, check within 10%.

David Arkov

PLZAK, A.

Economical operation in centralized motar production. P. 254.
(POZEMNI STAVBY, Vol. 2, no. 8, Aug. 1954, Praha)

SO: Monthly List of East European Accession,(EEAL), LC, Vol. 4,
No. 11, Nov. 1955, Uncl.

Plzak, F.

CZECHOSLOVAKIA / Chemical Technology. Chemical Products H and Their Application. Chemical and Technological Aspects of the Nuclear Engineering.

Abs Jour: Ref Zhur-Khimiya, No 9, 1959, 31902.

Author : Plzak, F., Klabik, V.
Inst : Not given.
Title : Extraction of Zirconium by Reduction of Zirconium Tetrachloride and by Electrolysis.

Orig Pub: Hutnicke listy, 1958, 13, No 1, 26-33.

Abstract: The method of extraction of $ZrCl_4$ by the chlorination of ZrO_2 and the reduction of $ZrCl_4$ to Zr by an Mg powder, and also the method of extraction of the Zr powder by the electrolysis of melted K_2ZrF_6, is introduced. Comparative investigations of these methods of Zr extraction from various kinds of raw materials were conducted. -- I. Vdinek.

Card 1/1

PLZAK, F.; LIZAL, B.

Examination of the most favorable conditions for the quantitative spectrographic determination of substances in the form of powder. p.297

HUTNICKE LISTY. (Ministerstvo hutniho prumyslu a rudnych dolu a Ceskoslovenska vedecka technicka spolecnost pro hutnictvi a slevarenstvi)
Brno, Cxechoslovakia. Vol.14, no.4, Apr. 1959

Monthly List of East European Accessions (EEAI) LC, Vol.8, no.11, Nov. 1959, Uncl.

PLZAK, F.; KLABIK, V.

Production of zirconium by reduction of zirconium tetrachloride and by electrolysis

P. 26. (HUTNICKE LISTY.) (Praha, Czechoslavakia) Vol. 13, No. 1, Jan. 1958

SO: Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 5, May 1958

PLZAK, F.

Preparation of ductile zirconium by the Van Arkel method. p. 518.
(Hutnicke Listy, Vol. 11, no. 9, September 1956. Brno, Czechoslovakia)

SO: Monthly List of East European Accessions. (EEAL) LC. Vol. 6, No. 6,
June 1957. Uncl.

PLZAK, F.; KUCERA, L.

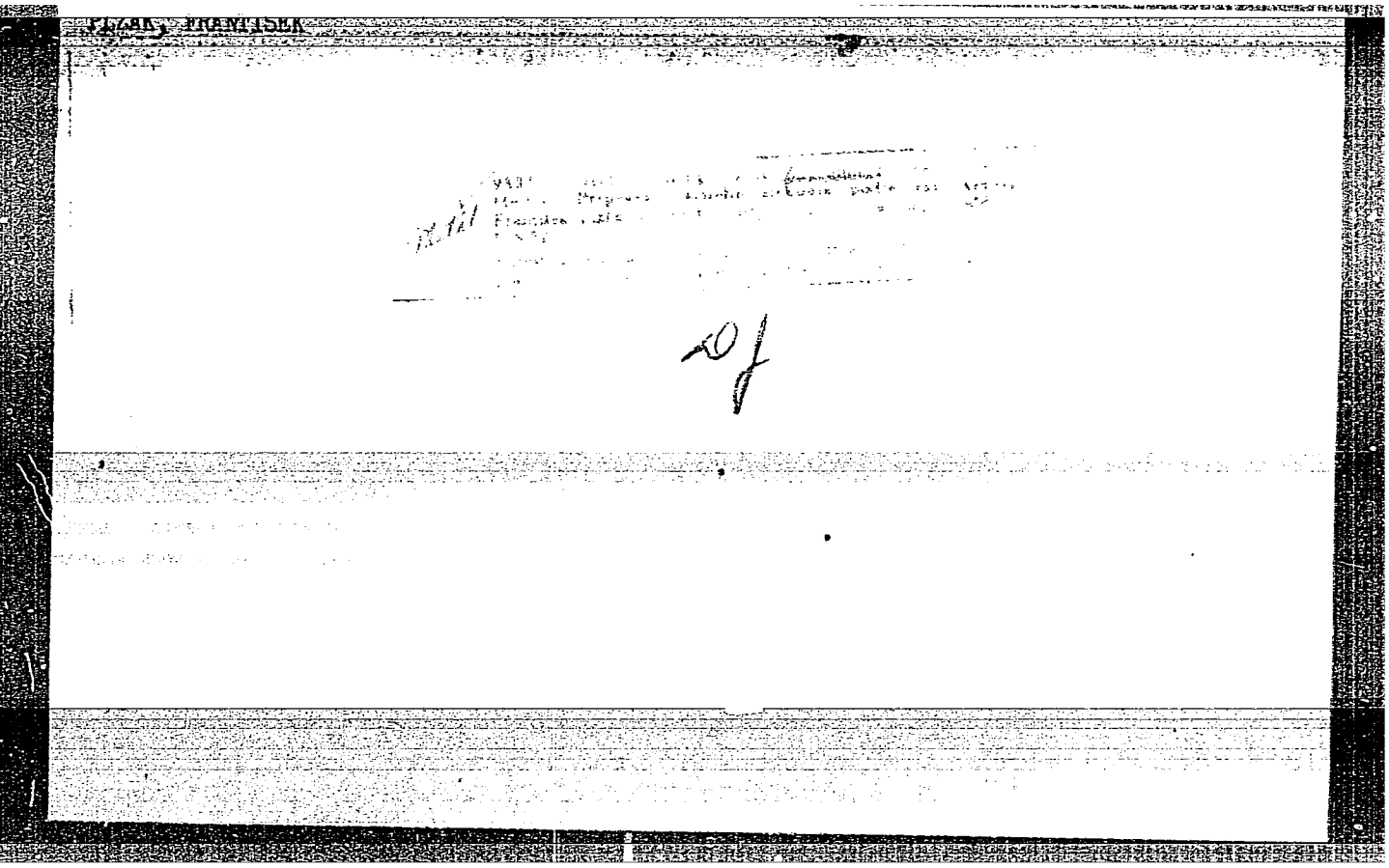
Josef Kuba's Spektraini analysa v kovoprumysiu (Spectrum Analysis in the Metal Industry); a book review. p. 170 CHEMICKY PRUMYSL. (Ministerstvo chemickeho prumyslu) Praha. Vol. 5, No. 6, June 1955.

SOURCE: East European Accessions List, (EEAL) Library of Congress, Vol. 4, No. 12, December 1955.

FELT, Vl.; MARSIKOVA, L.; PLZAK, F.

Effect of dehydroepiandrosterone and atromid on the serum uric acid level. Vnitrni lek. 11 no.10:960-963 O '65.

1. Vyzkumny ustav endokrinologicky, Praha (reditel doc. MUDr. K. Silink, Dr.Sc.).



CZECH/34-59-4-4/18

AUTHORS: Plzák, F., Ing. and Lízal, B.

TITLE: Investigation of the Optimum Conditions of Quantitative Spectrographic Determination of Substances in Powder Form (Vyšetření nejvhodnějších podmínek kvantitativního spektrografického stanovení látek v formě práškové)

PERIODICAL: Hutnické Listy, 1959, Nr 4, pp 297 - 301 (Czechoslovakia)

ABSTRACT: The technique of carrying out spectrographic tests on substances in powder form has not been developed to the same satisfactory extent as it has been for substances in the solid and liquid states. Two relevant Soviet papers were published on this subject. Buyanov (Ref 1) carried out his tests on powder placed on nickel or copper electrodes whilst Rusanov and Tarasov (Ref 2) forced the powder, by means of an air blast, into the region of the arc and spark discharge. The authors of this paper made check tests for the purpose of verifying the quantitative method suggested by Buyanov. This method, which has hitherto not been used in Czechoslovakia, is convenient because it requires only simple preparation

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and simple apparatus and yields accurate results. For the purpose of comparison, the authors also carried out tests with rotating samples pressed into briquettes and with powders in solution. The applied technique, the apparatus and the schedules of the tests are described in some detail. In the comparative tests, the total quantities of Fe, SiO_2 and CaO of cupola slags were analysed and in Table 1, p 301, the analysis duration as well as the accuracy of the results are compared for the three enumerated methods. The total duration of the analysis by means of a slidable nickel plate electrode is 80 min. as compared with 105 min of the briquette method and 188 min for the powder in solution; the respective accuracies were ± 10, ± 5 and ± 3%. It was found that use of a nickel plate is preferable since it is less liable to corrosion and also it has more convenient comparison spectrum lines than copper. The device for regulating the feed of the bottom (nickel and copper) electrode is shown in Figure 1 (sketch) and in Figures 2 and 3

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Investigation of the Optimum Conditions of Quantitative Spectrographic Determination of Substances in Powder Form

(photographs). The device used for the rotatable briquette electrode is shown in Figure 5 (sketch) and in Figures 6 and 7 (photographs). There are 8 figures, 1 table and 2 Czech references.

ASSOCIATION: Státní výzkumný ústav materiálu a technologie, Praha (State Research Institute for Materials and Technology, Prague)

SUBMITTED: December 9, 1958

Card 3/3

CZECH/34-59-7-4/22

AUTHORS: Plzák, František, Ing. and Hubáčková, Helena, Ing.

TITLE: Contribution to the Metallography of Zirconium and Titanium (Příspěvek k metalografii zirkonia a titanu)

PERIODICAL: Hutnické Listy, 1959, Nr 7, pp 580-583 (Czechoslovakia)

ABSTRACT: Paper presented at the Scientific Conference held at the University College for Chemical Technology, Prague, September 22-23, 1958. To overcome the difficulties encountered when preparing and evaluating zirconium sections, the author proposes the use of careful mechanical grinding with metallographic abrasive papers "Sial" of a grain size Nr 500 applying a very small pressure, followed by simultaneous chemical polishing and etching with a solution of 45 cm^3 H_2O, 45 cm^3 concentrated HNO_3 and 8 to 10 cm^3 HF. The chemical polishing and etching is carried out either by submerging the metallographic specimen into the solution or by applying the solution with cotton wool. The polishing and etching takes about 5 to 10 sec , at which time the first yellow vapours will be visible. Thus produced sections can be investigated in polarised light. For investigations

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Contribution to the Metallography of Zirconium and Titanium

with non-polarised light, the specimens have to be dyed and for this purpose the same solution can be applied diluted with 5 to 6 parts of H_2O. A similar method is proposed for titanium; in this case the solution consists of 60 cm³ H_2O_2 (30%), 40 cm³ H_2O and 8-10 cm³ HF (48%). Microstructure photographs of zirconium and titanium obtained by means of the here described processes are reproduced in Figs 1-10. There are 10 figures and 6 references, 4 of which are English, 1 French and 1 Soviet.

ASSOCIATION: Státní výzkumný ustav materialu a technologie, Praha (State Research Institute for Materials and Technology, Prague)

SUBMITTED: October 3, 1958

PLZAK, F.

CZECH

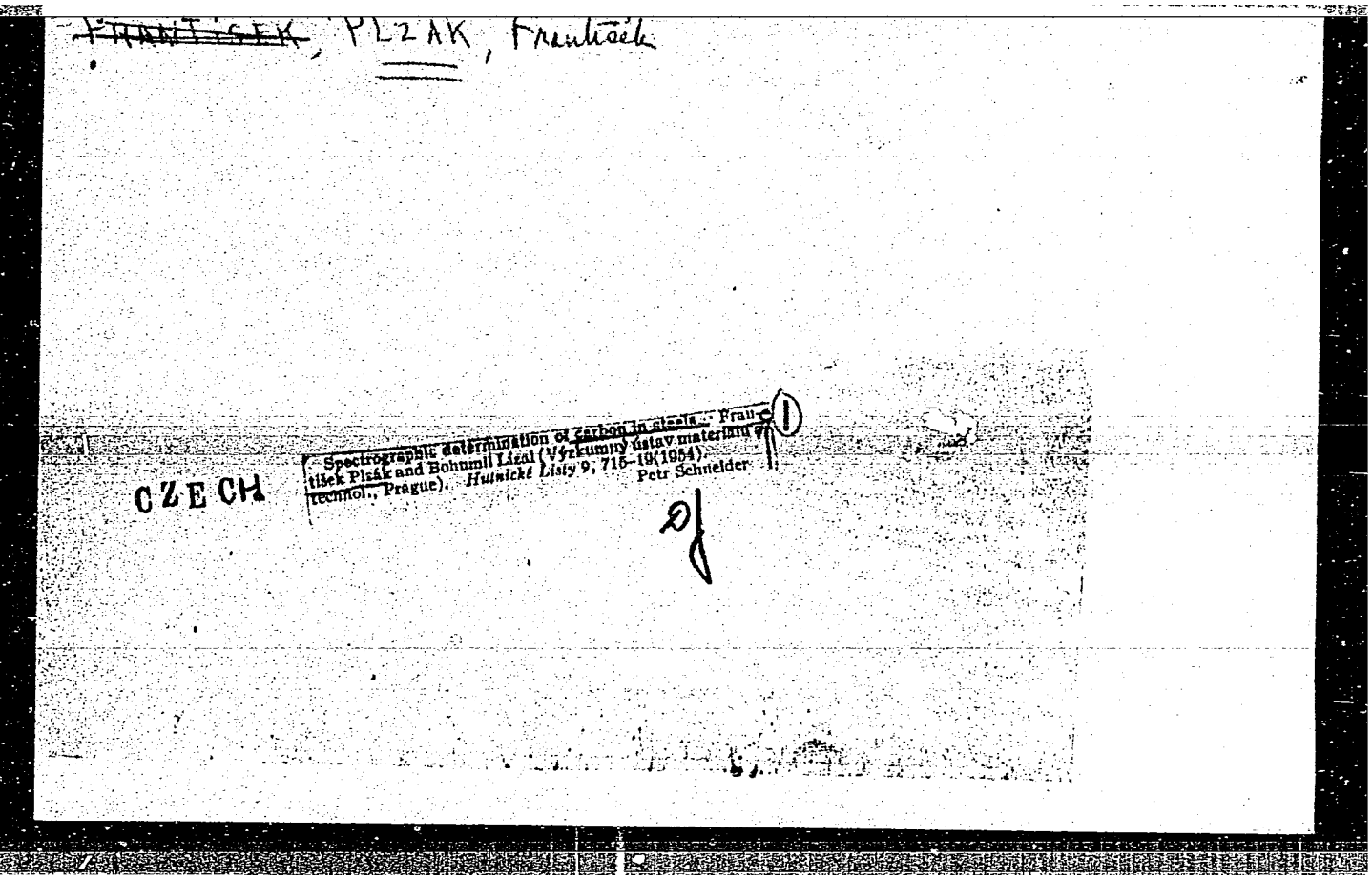
Spectrographic Determination of Carbon in Steels. F. Plzák and B. Lízal. (*Hutnické Listy*, 1954, 9, (12), 715–718). [In Czech]. Steels containing 0·2–1·0% C were used in a series of experiments designed to ascertain the optimum conditions for the spectrographic determination of carbon. In the analyses made, errors lie within ± 7% of the values obtained by chemical analysis. Nickel (1%) was found to interfere.—P. F.

PLZAK, FRANTISEK

3

4060* Preparation of Zr and Zirconium Hydride for Vacuum Refining. **Příprava zirkonia a hydridu zirkonia pro účely vakuové techniky.** (Czech.) František Plzák. *Hutnické Listy*, v. 9, no. 11, Nov. 1954, p. 650-659.

Equipment and processes for producing Zr from zircon. Diagrams, photographs, micrographs. 10 ref.



~~FRANTISEK~~, PLZAK, Frantisek

CZECH

Spectrographic determination of carbon in steels. Frantisek Plzak and Bohumil Lizal (Vyzkumny ustav materialu technol., Prague). *Hutnicke Listy* 9, 715–19(1954). Petr Schnelder

PLZAK, F.

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Sendust, an antiremanent alloy. J. Tykva and F. Plzák. *Strojírenství* 8, 776–8 (1958).—Phys. and technol. properties of Sendust, coutg. Si 9.0, Al 5.4%, and iron, were given. The effect of heat-treatment was studied. B. M. Fabuss

3.
4E2u

PLZAK, F. ; VARVAROVSKY, M.

"Utilization of zirconium wastes in vacuum technique enterprises." p. 189.

SLABOPROUDY OBZOR. (MINISTERSTVO PRESNEHO STROJIRENSTVI, MINISTERSTVO SPOJU A VEDECKA TECHNICKA SPOLECNOST PRO ELEKTROTECHNIKU PRI CSAV.) Praha, Czechoslovakia, Vol. 20, no. 3, Mar. 1959.

Monthly List of East European Accessions (EEAI), LC, Vol. 8, No. 9, September 1959. Uncl.

KANDA, Milan, inz.; PLZAK, Jaroslav

Task of supervisors in the automation of electric power distribution. Energetika Cz 12 no.9:472-474 S '62.

1. Stredoceske energeticke zavody, Praha.

PLZAK, J. ; MICHL, J. ; KADLAS, O.

PLZAK, J. ; MICHL, J. ; KADLAS, O. Problems of education in colleges, and technical practice; contributions to the discussion of Kohlmann's article. p. 398

Vol. 17, no. 7, July 1956
SLABOPROUDY OBZOR
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accession Vol. 6, no. 2, 1957

CZECHOSLOVAKIA

PLZAK, M.; Psychiatric Clinic, Prague. [Orig. version not given]

"Combination of Ataractics and Non-Mercurial Diuretics in the Treatment of the Manic Syndrome."

Prague, Activitas Nervosa Superior, Vol 8, No 4, Nov 66, p 370

Abstract: Effect of Levopromazine (100 mg) and Hydrochlorothiazide (50 mg) was investigated in 15 patients with a manic syndrome. 8 improved substantially; in 4 a sudden and unusual return to normalcy was observed. Diuresis increased on an average by 25%. An inhibition of psychomotor activity resulted in fatigue of the patients and a great tendency to rest, which facilitated treatment. No references. Submitted at the 8th Annual Psychopharmacological Meeting at Jesenik, 18-22 Jan 66. Article is in English.

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L 29503-66

ACC NR: AP6020007 SOURCE CODE: CZ/0079/65/007/003/0293/0293

AUTHOR: Soucek, K. (Prague); Plzak, M.

ORG: Psychiatric Clinic, Charles University, Prague

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B

TITLE: Therapeutic effect of imipramine in repeated phases of endogenous depression in the same individual [This paper was presented at the 7th Annual Psychopharmacological Meeting, Jesenik, 20-23 January 1965.]

SOURCE: Activitas nervosa superior, v. 7, no. 3, 1965, 293

TOPIC TAGS: drug treatment, psychoneurotic disorder

ABSTRACT: The authors attempted to confirm the data of Angst who stated that a patient treated several times with imipramine shows in subsequent treatment resistance to the drug. Investigation conducted on 19 patients did not show any decrease in the therapeutic effect of imipramine in subsequent treatments. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06 / SUBM DATE: none / OTH REF: 001

Card 1/1 LS

SKALICKOVA, O. (Praha 2, Ke Karlovu 11); PLZAK, M.; SOUCEK, K.

Psychological and psychiatric aspects of female involution. Cesk. gynek. 30 no.6:482-485 Ag '65.

1. Psychiatr. klin. fak. vseob. lek. Karlovy University v Praze (prednosta prof. dr. V. Vondacek, DrSc.). Submitted January 9, 1965.

PLZAK, M.; MARTONOVA, F.

The problem of responsibility in the prevention of suicide and suicidal attempts. Cesk. psychiat. 61 no.2:118-120 Ap '65

1. Psychiatricka klinika fakulty vseobecneho lekarstvi Karlovy University v Praze.

PLZAK,M.; SOUCEK,K.

The problem of the duration of the depressive phase in periodic affective psychoses. Cesk. psychiat. 61 no.2:107-112 Ap '65

1. Psychiatricka klinika fakulty vseobecneho lekarstvi Karlovy University v Praze.

PLZAK,M.; DOBRY,J.; ZAMYKAL,A.

The Jarosz method of tissue therapy in the treatment of depressive neurasthenic forms of cerebral arteriosclerosis. Cesk. psychiat. 59 no.5:319-322 O'63.

1. Psychiatricka klinika fakulty vseobecneho lekarstvi KU, Praha a Psychiatricka lecebna v Hornich Berkovicich.

PLZAK, M.; LEDEREROVA, E.; SOUCEK, K.; GROF, P.; VOLAVKA, V.; POKORNY, R.; NEUMANN, J.; BREZINOVA, V.

Combined Tofranil-Pyrifer therapy of endogenous depression. Activ. nerv. sup. 4 no.2:226 '62.

1. Psychiatricka klinika fakulty vseobecneho lekarstvi Karlovy university v Praze, Psychiatricka lecebna v Hornich Berkovicich.

(IMIPRAMINE ther) (PYROGENS ther)
(DEPRESSION ther)

CZECHOSLOVAKIA

M. PLZAK, R. FISCHER, M. LEDEREROVA and M. TOMANOVA, Psychiatry Clinic of Faculty of General Medicine of Charles University (Psychiatricka klinika fakulty vseobecneho lekarstvi Karlove University) and Psychiatric Hospital (Psychiatricka lecebna) Horni Berkovice.

"Methylene Blue in Therapy of A Type of Symptomatic Depression."

Prague, Activitas Nervosa Superior, Vol 5, No 2, May 63; pp 180-181.

Abstract : Methylene blue 450 to 800 mg. daily to 15 arteriosclerotic depressive patients aged 50 to 71 (average 58.3) resulted in a very significant degree of improvement in 4, partial in 9 after 2 to 5 weeks of such treatment. Side effects pollakiuria and strangury; analgesic effects also prominent in decrease of headaches. Further studies are urged.

CZECHOSLOVAKIA

PLZAK, M.; DOBRY, J.; ZAMMAL, A.; Psychiatric Clinic of the Faculty of General Medicine of the Charles University [Psychiatricka Klinika Fakulty Vseobecneho Lekarstvi KU], Prague; Psychiatric Hospital [Psychiatricka Lecebna], Horni Berkovice.

"Tissue Therapy According to Jarosz in the Treatment of the Depressive Neurasthenic Type of Arteriosclerosis of the Cerebral Arteries."

Prague, Ceskoslovenska Psychiatrie, Vol 59, No 5, 1963, pp 319-322

Abstract: Jarosz' modification of tissue therepy was tested in a group of 23 patients. All had confirmed symptoms of depressive neurasthenic arteriosclerosis of the cerebral arteries. The results were very encouraging. Treatment does not involve any complications and is very easily applied.
2 Tables, no references.

1/1

L 11021-66

ACC NR: AP6004967 SOURCE CODE: CZ/0083/65/000/002/0107/0112

AUTHOR: Plzak, M.; Soucek, K.--Souchek, K.

ORG: Psychiatric Clinic, Faculty of General Medicine, Charles University, Prague (Psychiatricka klinika fakulty vseobecneho lekarstvi, KU) 11 B

TITLE: Duration of the depressive phase of periodic affective psychoses

SOURCE: Ceskoslovenska psychiatrie, no. 2, 1965, 107-112

TOPIC TAGS: psychology, applied psychology, behavior pattern

ABSTRACT:

The authors compared time parameters of the depressive phase of affective periodic psychoses in 3 groups of patients: 1. no medication given; 2. treatment with imipramine; 3. treatment with electric shock. A broad scattering of the duration of the depressive phase was found. The electrical shocks show a good curative effect, and so does imipramine. The latter however takes longer to work. The authors thank Dr. R. Fischer for significant assistance with the processing of the results. Orig. art. has: 3 figures and 2 tables. [JPRS]

SUB CODE: 05 / SUBM DATE: none

HW

Card 1/1

L 11024-66

ACC NR: AP6004969 SOURCE CODE: CZ/0083/65/000/002/0118/0120

AUTHOR: Plzak, M.; Martonova, F.

20B

ORG: Psychiatric Clinic, Faculty of General Medicine, Charles University, Prague (Psychiatricka klinika fakulty vseobecneho lekarstvi KU)

TITLE: Question of responsibility in prevention of suicides and suicidal attempts

SOURCE: Ceskoslovenska psychiatrie, no. 2, 1965, 118-120

TOPIC TAGS: psychiatry, medical personnel, psychoneurotic disorder, psychotherapy

ABSTRACT: The moral and legal responsibilities of a psychiatrist for the life of his patients are discussed. Less than 30% of those who attempt suicide are psychiatric patients. Individual responsibility for definite cases should not be accepted; however, psychiatry as a science should study the problem of suicides. Usually talking about suicides is a good guidance. Guidance to the the probability is a result of talking to the patient. Only 7% of those who commit suicide do not talk about it at the guidance time. Probability of attempting suicide in endogenous depression in reaction disturbances, and under the influence of outside pressure is evaluated. The authors thank Professor-Dr. V. Vondrack, Doctor of Sciences, for reading of the manuscript and for valuable remarks. [JPRS]

SUB CODE: 06, 05 / SUBM DATE: none / ORIG REF: 002 / OTH REF: 005

HW

Card 1/1

DVORAK,Ladislav, ing.(Praha); PLZAK,Vlasta,(Translator) (Zagreb)

High-frequency welding of softened thermoplastic foils; principle, advantage and limitations. Zavarivanje 3 no.4/5:92-97 My '60.

1. Vyskumny ustav obrabecich stroju a obrabeni, Praha(for Dvorak)

PLZAK S.Z.

1ST AND 2ND ORDERS | 3RD AND 4TH ORDERS

PROCESSES AND PROPERTIES INDEX

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8

Rapid Checking of the Dimensions of Castings. J. Poch and S. Z. Plzek. (Kovodelny Prumysl, 1950; May, pp. 74-77). [In Czech]. A rapid method of checking the dimensions of casting is described. The casting is bolted on to a specially designed frame. The scale drawing of the checked part is drawn on perspex or any other solid transparent material and the plate containing this drawing is placed on the frame so that a comparison can easily be made.

E. G.

PNEV, V.P.

Geological structure of one of the polymetallic deposits of the southern Altai. Zap.LGI 37 no.2:132-148 '60. (MIRA 15:7)
(Altai Territory--Ore deposits)

AVROV, D.P.; PNEV, V.P.

Manifestation of recent tectonics in the southern Altai. Zap. LGI 37 no.2:149-152 '60. (MIRA 15:7)
(Altai Territory--Geology, Structural)

SHIROKIKH, Volodya; PNEV, Yura; LUPENKO, Vasya (g. Sverdlovsk)

Our contest "Observe nature." IUn.nat. no.12:3-6 D '58.
(MIRA 11:12)

1. Shkola No.52, g. Kazani (for Shirokikh) 2. Detskiy dom No.16, g. Rigi (for Pnev).
(Nature photography) (Rabbits) (Mushrooms)

IL'INSKAYA, I.A.; PNEVA, G.P.

New data on the flora of the Mamontova Mount. Bot.zhur. 47 no.2:161-175 F '62. (MIRA 15:3)

1. Botanicheskiy institut imeni Komarova AN SSSR, Leningrad.
(Aldan Plateau--Paleobotany)

PNEVA, V.M.

Using the method of geometrical characteristics for the analysis and synthesis of five-link asymmetric mechanisms. Trudy LPI no.191: 5-20 '57. (MIRA 11:9)

(Mechanical movements--Graphic methods)

PNEVSKIY, YU.

Atomic Physics, Cosmic Rays
Byull. Polskoy Akad. Nauk, Otd. III, (Vol) 1, No 1-2, 1953, pp 40-42
Pnevskiy, Yu.
Retarded Decay of a Heavy Fragment Ejected From a Nuclear Star

Cf: Moscow, Referativnyy, Zhurnal -- Fizika, 1954, Abstract No 1356.

(No abstract given.)

So: Moscow, Referativnny, Zhurnal -- Fizika, no 6, 1954 W-31059